



TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

LARRY J. WILSON, DIRECTOR

2404 South Duff Avenue
Ames, Iowa
50010

October 25, 1988

Dear Cooperator:

Enclosed is a copy of the 1988 Pest Survey report for Iowa that was done with the assistance of my summer intern from Iowa State University. I hope that you will find the information of some interest to you.

Sincerely,

Roy G. Hatcher
Protection Forester

encls.

3400
pest conditions

FOREST PEST SURVEY

IOWA 1988

Iowa Department of Natural Resources

Division of Forestry

Russell L. Groves

Insect and Disease Intern

INTRODUCTION

The Forest Insect and Disease Intern position was created to provide worthwhile experience to an Iowa State University undergraduate in the field of forest pest management. The practical experience that I ^arequired as an intern for the Iowa Department of Natural Resources was very beneficial in terms of both education and recognition of forest pest problems. This type of employment has been a great addition to the knowledge I have previously acquired from school. The year of 1988 will be the eighth year for this position and hopefully the information presented in this report will be worthwhile to my employer.

IOWA GYPSY MOTH SURVEY

To maintain surveillance upon and control possible infestations of the Gypsy Moth, Lymantria dispar L., statewide traps were set and monitored to accomplish this. The moth is a defoliator of primarily hardwood trees and, if in great numbers, can cause a reduction in growth or even death of an individual or stand of trees.

Beginning in 1987, the first gypsy moth infestation was recorded in Clinton, Iowa. [Eighty acres were mass trapped in 1988.] Larval traps were also installed in the area. Twelve male moths, plus one larvae and two egg masses were found. A single male moth was trapped within the city limits of Waterloo, Iowa. No other moths were caught within the state. [Over 3,000 traps were set in 1988 in all 99 counties.] For this position as forest insect and disease intern, I monitored a total of 23 traps. No male moths were caught in the traps assigned for myself to monitor.

Egg mass surveys will be done in the Clinton area in November. Control measures for 1989 will be decided upon after the results of that survey.

INTERN OBSERVATIONS

The effects of climate, namely the lack of appreciable precipitation, has taken a notable toll on the forests and trees of Iowa. The summer of 1988 was recorded as one of the top three driest periods on record. The lack of rainfall has had a marked effect upon the incidence and severity of pests to their host trees. Many of the foliar diseases common in early spring were not as common this year. However, with the reduction in foliar diseases has come an increase in many others. For example, newly planted conifer seedlings in plantations or Conservation Reserve Program acres (C.R.P.), have suffered dramatically as a result of the dry conditions. Also, the attack of the Twolined Chestnut Borer has had an impact upon many Red, White, and Burr Oaks in Iowa. Branch dieback in the mature White and Burr Oaks is very common; also the Red Oaks are even suffering mortality in some instances due to the insect attack.

In contrast, this year may have caused quite a bit of both insect and disease damage, but the ^{u?}fall impact of this years' dry conditions should not become fully evident until the next 2 to 3 years to follow. The effect of the drought will be one of a stressed condition in which nearly all trees may be more susceptible to attack or colonization by insects or disease respectively. Again, effects of the 1988 drought are apparent at this time, but the ^{u?}fall impact of the weather will not be noticeable until the following years.

IOWA AERIAL SKETCH MAP SURVEY

In the last week of July an aerial survey was conducted on the major forested areas of the state. The surveys were intended to identify areas where decline of vigor or death was evident. Those areas that were mapped included the proposed Pioneer State Forest, Yellow River State Forest, Shimek State Forest, Stephens State Forest, Lacey Keosauqua State Park, Waubonsie State Park, and some areas in both Iowa and Johnson counties constituting the property of the Amana Colonies. Nearly 12% of the total forest area in the state was covered by the aerial sketch map survey. The results of the survey are listed in the following table identifying the causal agent of the problems as well as the totals. These plots that are considered "unknown" are not listed in the following table (Table 1.).

*Table #1; Causal agents for aerial sketch mapping.

a.) Proposed Pioneer State Forest

7	Fire Damage
3	Oak Wilt
2	Ash Decline
2	Cattle Damage
<u>1</u>	Dutch Elm Disease
15	Total

b.) Yellow River State Forest

4	Ash Decline
2	White Pine Blister Rust
1	Dutch Elm Disease
<u>1</u>	Bulls-Eye Leaf Spot
8	Total

*Table #1 (Cont.);

c.) Shimek State Forest (Lacey-Keosauqua)

2	Dutch Elm Disease
2	Pine Wood Nematode
1	Oak Wilt
<u>1</u>	Cattle Damage
6	Total

d.) Shimek State Forest (Farmington-Croton)

5	Dutch Elm Disease
3	Oak Wilt
3	Cattle Damage
<u>1</u>	Unknown Hackberry Decline
12	Total

e.) Stephens State Forest (Leroy, Lucas, Derby)

13	Oak Wilt
2	Dutch Elm Disease
2	Ash Decline
1	Pine Wood Nematode
1	Fomes Annosus Rot
<u>1</u>	Unknown Hickory Decline
20	Total

f.) Stephens State Forest (Olmitz, Weller)

11	Oak Wilt
3	Dutch Elm Disease
1	Ash Decline
1	Ips. sp.
<u>1</u>	Pine Wood Nematode
17	Total

*Table #1 (Cont.);

g.) Waubonsie State Park

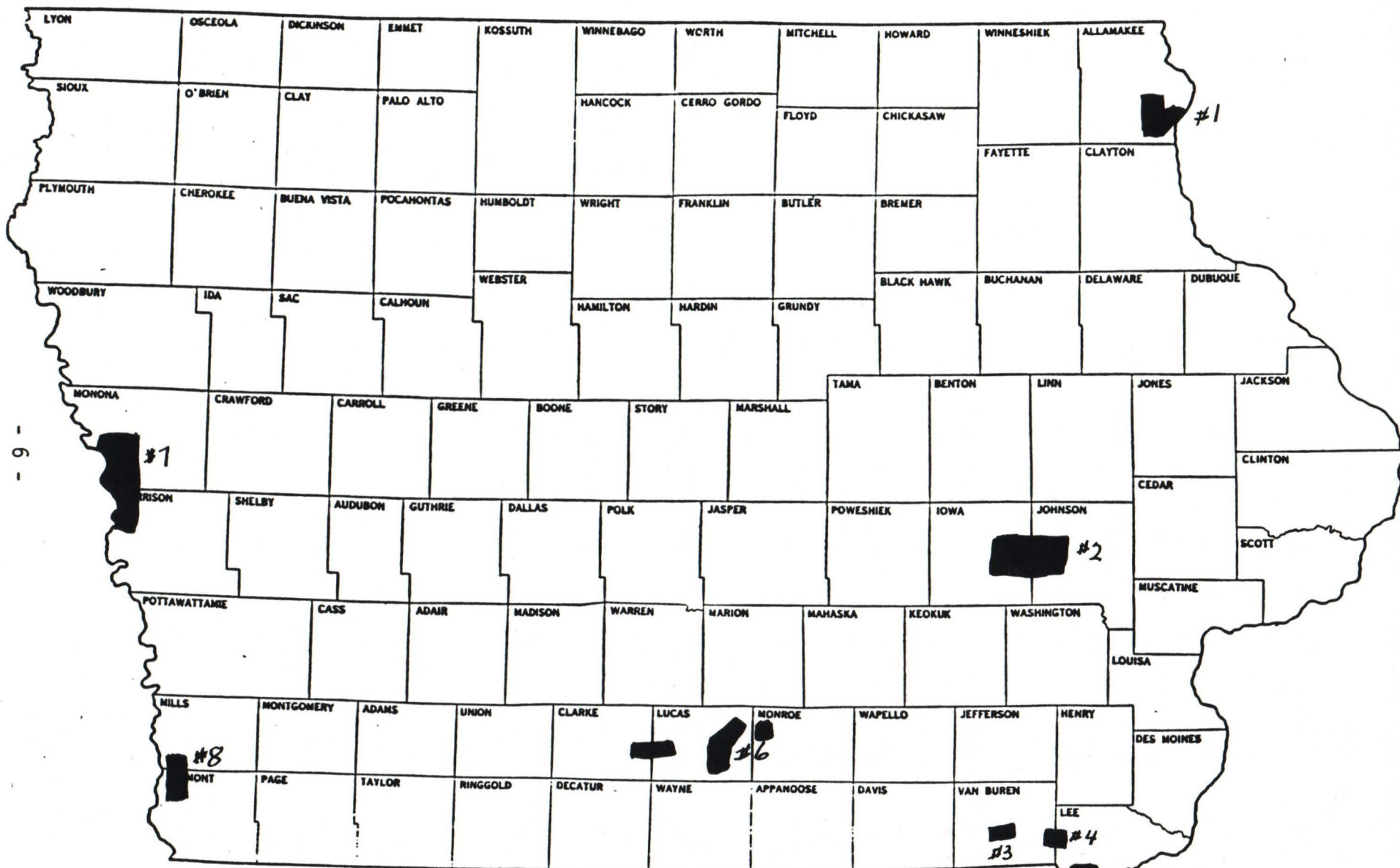
5	Oak Wilt
3	Fire Damage
1	Dutch Elm Disease
1	Unknown Basswood Decline
<u>1</u>	Unknown Cedar Decline
11	Total

h.) Amana Colonies (Iowa and Johnson Counties)

7	Oak Wilt
3	Dutch Elm Disease
2	Cattle Damage
2	Silver Maple Decline
1	Unknown Locust Dieback
<u>1</u>	Unknown Hackberry Decline
16	Total

AREAS COVERED BY AERIAL SKETCH MAP SURVEY

1988



#1 - Yellow River State Forest

#2 - Amana Colonies

#3 - Shimek State Forest - Lacey Unit

#4 - Shimek State Forest - Farmington Unit

#5 - Shimek State Forest - Croton Unit

#6 - Stephens State Forest

#7 - Loess Hills Pioneer State Forest

#8 - Waubesa State Park

FOREST PROBLEMS IN IOWA: 1988

Very few, if any major forest pest problems exist at this time in Iowa. For case of discussion I have separated the pests of hardwoods and softwoods into two sections.

I. Hardwood Insects and Disease

To begin, of all possible diseases that infest Iowa hardwoods, only three are causing a significant amount of loss, or damage.

The first disease causing some problems is termed ash yellows. This infection is thought to be caused by a mycoplasma-like organism (M.L.O.). Trees infected by the ash yellows organism are characterized by chlorotic, pale-green leaves. Most infected trees have thinning crowns with epicormic branching both along the stem as well as at the base of the tree. Witches' brooms are also quite evident at the ends of branches. White ash is the primary host with green ash slightly less susceptible. This disease has been observed throughout the New England states as well as in the Lake States, and Central States including Iowa.

Another similar disease affecting hardwood trees is a wilt fungus called oak wilt, Ceratocystis fagacearum. This is a vascular wilt disease characterized by wilting of foliage in infected trees. Red oaks suffer much mortality while the white and burr oaks most often suffer branch dieback. Of all areas flown this summer in the aerial sketch mapping project, this disease was probably the most prevalent.

The final disease affecting hardwoods in Iowa most often was another vascular wilt fungus. Dutch elm disease, Ceratocystis ulmi, is a disease killing primarily elm species. American elm is more susceptible than the other native or Asian species. Colonized branches die quickly with leaves falling off. Most often the trees die quickly but some will die branch by

I. Hardwood Insects and Disease (Cont.)

branch. The incidence of this disease in Iowa forests is becoming less frequent due to the fewer numbers of existing elm trees.

The most prevalent insect problems in Iowa are few in number. Of those insects following, none of these present real ecological or economical loss.

The first insect to be described is the Twolined Chestnut Borer. Because many trees were partially weakened by drought, there was a large incidence of attack by this insect. The larvae bore into the inner and outer wood sometimes girdling the tree. This may result in death to the tree. Although the Twolined Chestnut Borer, Agrilus bilineatus, has the potential for killing trees, it rarely does so on a grand scale in the forest situation.

Also, some defoliations of the spring canker worm were evident. In some areas along the Cedar River over 100 acres have been partially or completely defoliated by the spring canker worm, Paleacrita vernata. These trees, however, would refoliate in the latter part of the summer with little consequence.

Finally, some secondary pests were also quite frequent in stressed or dying trees. Insect families primarily responsible for this were Cerambycidae and Buprestidae.

II. Conifer Insects and Disease

Very few diseases overall have a very significant impact upon the growth of conifers in Iowa. Conifers are susceptible to ⁿmay diseases, but no single disease really constitutes a major problem. For example, many diseases of conifers exist in Iowa, but none really have an extravagant impact except in commercial Christmas tree plantings. In these plantings, many species of pines (i.e. scots and austrian pine) are very susceptible to many needlecast diseases. For example, Lophodermium needlecast, Lophodermium pinastri, Cyclaneusma needlecast, Cyclaneusma minus, and Diplodia shoot blight, Diplodia pinea, are all

II. Conifer Insects and Disease (Cont.)

examples of diseases that may or may not create problems.

Insect damage of Iowa conifers can, at times, be of little consequence while other times it can be a very serious problem.

Both Ips sp. and Dendroctonus sp. engravers are widespread through the state where conifers occur, namely pines. Symptoms of the damage is evident in both forest stands of pine as well as those pine in Christmas tree plantations. Generally, only those pines which are stressed or currently colonized by an infectious disease are most susceptible. Evidence of their damage is usually emergence holes in the main stem but reddish foliage is another good indicator.

Finally, the other troublesome insect which causes some damage, most often in Christmas tree plantings, is the pales weevil, Hylobius pales. This insect can become a problem where harvests of trees leave stumps suitable for breeding. Heavy feeding by the insects can possibly girdle the tree.

Conclusion

Concluding, I wish to thank the personnel of the Division of Forestry for the opportunity to do the work offered. The knowledge and experience gained was very great and I would especially like to thank Roy Hatcher. It was a pleasure to work for this organization.

Addendum
Forest District Pest Reports
1988

by Roy G. Hatcher
Protection Forester

The following is a listing of the major pest problems found in the twelve forest districts:

Elkader - Bulls-eye leaf spot was found in the Yellow River Forest in the walnut seed orchard established 12 years ago. The plantation was heavily defoliated. Trees were cut off in July and allowed to root sprout.

Charles City - Drought was major problem in all counties on all species.

Marshalltown - Drought was major problem in all counties on all species.

Anamosa - Major problems were spring canker worm, ash yellows, oak wilt and drought.

Wapello - Oak wilt was more severe than usual in Lee and Des Moines counties. A large number of dead and dying ash in Louisa county, cause unknown. Drought hit hard on plantations and windbreaks.

Fairfield - Drought was major problem in all counties.

Chariton - Drought was major problem in all counties; heavy infestation of *Ips. pini* in scots pine in all counties.

Adel - Drought was major problem in all counties.

Red Oak - No report submitted.

LeMars - *Diplodia* and *Dothiestroma* heavy throughout district.

District Reports (Cont.)

Creston - Oak wilt was more severe.

Humboldt - No major problems.

Yellow River State Forest - White pine blister rust is on the increase in both young and old plantations.

General Comments on District Reports

All districts had reports of many routine problems such as Cytospora canker, Rhizosphaera needlecast, anthracnose on various species, Twolined Chestnut Borer, elm leaf beetle, Dutch Elm Disease and aphids. By far, the most devastating problem was the drought, especially on new plantations. The effects of the drought will be noticed for the next few years.